



**PATREC**

Planning and Transport Research Centre (PATREC)

# **ANNUAL BUSINESS PLAN**

## **2019**

<b>Prepared by</b>	<b>Sharon Biermann and Alan Colegate</b>
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<b>Version</b>	<b>FINAL</b>

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# 1 INTRODUCTION

## 1.1 About this Plan

### 1.1.1 Contractual requirement

According to the new Collaborative Agreement executed on 8 December 2016, annual business plans will be presented to the Board at the last meeting of each calendar year for approval and will direct business for the following year. They should include a description of the program of research to be undertaken by PATREC during that year, a budget for that year, planned targets for agreed financial and non-financial key performance indicators, and any update of the Strategic Plan for that year.

Annual business plans are prepared in the context of the prevailing strategic plan which is revised every three years. The current strategic plan is valid for the three year period 2017-2019 and was approved by the Board on 20 April 2017. Any interim strategic updates are included as part of the annually prepared business plans.

### 1.1.2 Purpose

The purpose of this Business Plan 2019 is to:

- update the strategic drivers impacting on PATREC's research plan for 2019;
- outline the process followed in arriving at the research plan for 2019;
- present the research focus in the form of project concepts under consideration within the ambit of agreed research focus areas;
- provide a working budget for 2019; and
- set key performance indicator targets.

## 1.2 About PATREC

### 1.2.1 Agreement

PATREC has been formed based on a Collaborative Research Agreement signed in 2016 by six core partners:

- University of Western Australia
- Curtin University
- Edith Cowan University
- Department of Transport
- Main Roads Western Australia
- Western Australian Planning Commission.

The 2016 agreement includes a three-year rolling funding to provide a greater level of continuity.

### 1.2.2 Purpose

To conduct collaborative, applied research and teaching in support of policy in the connected spaces of transport and land use planning

### 1.2.3 Governance

PATREC is governed by a Board representing its sponsoring universities and the Government of Western Australia. The role of the Board is to provide leadership and strategic direction to the Centre and to promote cooperation and collaboration between all parties involved. It has an independent chairman and meets three times per year. The following are the current Board members

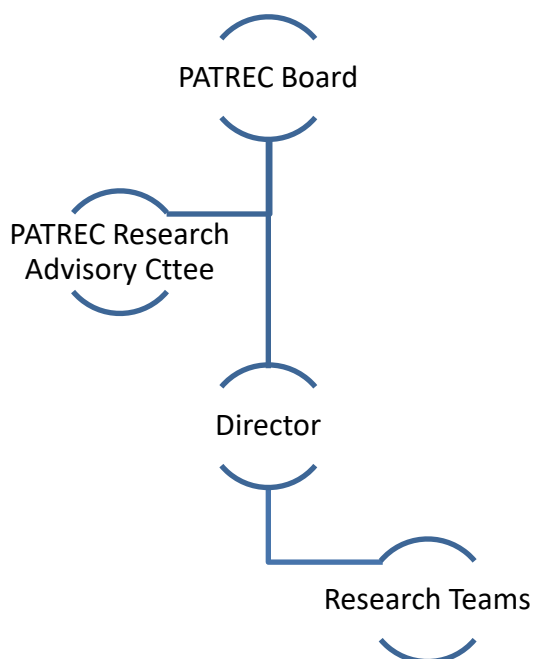
- Reece Waldock            Chairman
- Prof. Keith Hampson    Curtin University
- Prof. Margaret Jones    Edith Cowan University
- Prof Matthew Tonts      University of Western Australia

- Steve Beyer Department of Transport
- Peter Woronzow Main Roads Western Australia
- David Caddy Western Australian Planning Commission
- Ian Duncan WA Local Government Association

PATREC is led by its Director Professor Sharon Biermann and supported by two Research Fellows and an administrator.

The PATREC Research Advisory Committee (PRAC) was established in 2016 and comprises senior representatives from each partner organisation, chaired by a nominated representative elected by the Board. The objectives of PRAC are to introduce an element of formality and rigour to the research project identification, selection, support, monitoring and dissemination process; enhance communication amongst partners; and advise the Board on project level matters, allowing the Board to focus on strategic matters.

The following diagram represents the hierarchal governance structure underpinning PATREC



#### 1.2.4 Relationships and Stakeholders

Beyond the six core partners the work of the Centre could not be completed without forging strong relationships within our academic, research and policy community but also amongst private industry with consulting and independent research agencies.

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## 2 STRATEGIC DIRECTION

The Strategic Plan was reviewed in April 2017 and sets out the direction of the Centre until 2019, it is reviewed every three years and updates included in annual business plans.

### 2.1 Value Proposition

Capitalising on its extended [international] network of academic expertise and policy partners, PATREC's value proposition is to broker and conduct applied research and teaching in support of policy in the connected spaces of transport and land use planning through the following four key strategic activities:

1. multi-disciplinary, multi-institutional applied research in response to identified agency research requirements and knowledge gaps

2. knowledge transfer through academic and less formal publications, connection events and a website as a reliable and accessible resource for researchers and policy-makers
3. training, predominantly in the form of professional development through short courses, executive programs and “expert” courses on key topics, conducted in collaboration with other professional and industry bodies where possible
4. attracting additional research funds through business development.

in order to advance the knowledge base and forge new and innovative evidence-based solutions for effectively planning and managing Western Australia’s future.

## 2.2 Research Focus Areas

PATREC has established four research programs to undertake research and deliver high-impact outcomes, although collaboration between programs is expected and required. These programs were developed in response to the research needs and questions arising from the stakeholder-informed strategic planning process, the research competence base across the three collaborating universities and emerging external funding opportunities.

### Integrated land use and transport futures

- Improving land use and transport integration now and into the future, using a systems-based, scenario-oriented approach to longer term strategic forecasting and evaluation, depending on and informing, integrated LU-T modelling.

### Smarter travel decisions

- Focus on the potential for deployment and integration of technology to enable more intelligent and connected transport choices and help Australian cities use resources more efficiently and defer the need for new infrastructure

### Integrated freight system optimisation

- Improve freight transport efficiency and effectiveness and support the planning for economic clusters by providing a comprehensive overview of the freight patterns generated by industrial activities of varying types in metropolitan Perth.

### Emerging technology and network optimisation and intelligence

- Developing a data-driven decision support system for optimising road network operations

## 2.3 Strategic Drivers Update

Westport and Metronet remain the key government priorities affecting planning and transport in Western Australia. Participation of PATREC in the iMOVE CRC is until 2027 and the Smart Cities RailSmart Wanneroo project continues until mid-2019. The strategic update on these drivers provided in the Business Plan 2018 thus remains applicable for 2019.

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### 3 LAST YEAR'S PERFORMANCE

The following are some of the key achievements delivered in 2018. More complete information can be found in the 2018 Annual Report on the website.

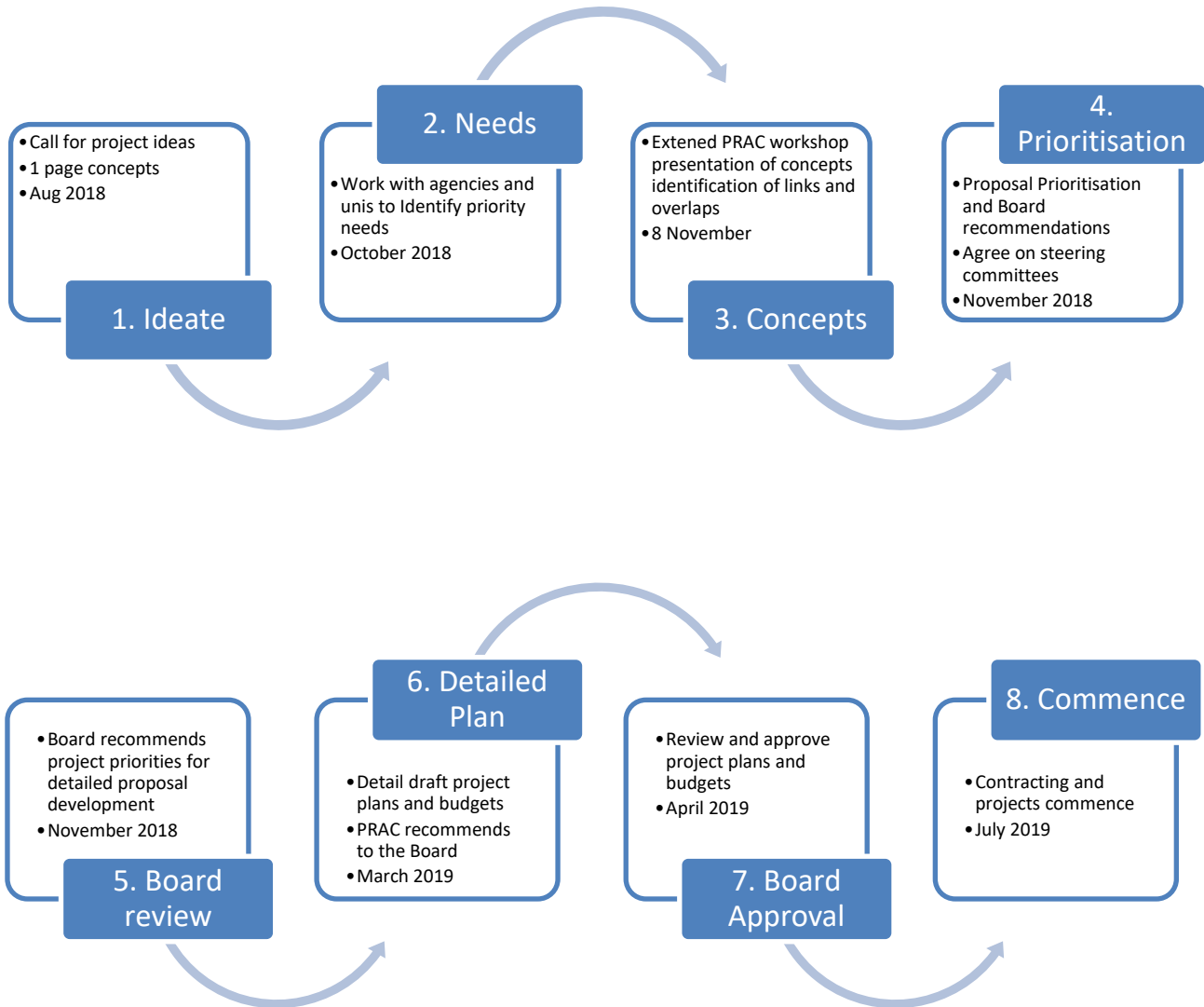
- The following iMOVE CRC WA Projects launched in February 2018:
  - Enhanced short and longer term network performance prediction capabilities through data-driven analytics and simulation
  - Planning intermodal and general logistics infrastructure for the future needs of Perth
  - Milestone progress well on track for completion in September 2019 and additional funding contributions made to supplement core iMOVE projects.
- Smart Cities and Suburbs grant agreement signed on 7 February 2018 with additional funding by City of Wanneroo, DOT, UWA and ECU: RailSmart Wanneroo Planning Support System - \$1 million project over 18 months, launched as part of City of Wanneroo Jobs Summit in June 2018. Milestone progress on track for a May 2019 completion.

## 4 2019-2021 CORE PROJECT PROPOSALS

### 4.1 Core Research Project Identification Process

The core research project identification process is detailed in Appendix A.

The Board agreed to the following process for the call and management of research proposals for the next period:



## 4.2 Core Research Project identification Outcome

**Table 1: Project prioritised for inclusion in the PATREC core-funded research project package 2019-2021**

Project 2019-2021 (2 years)*	Proposer	Research Partner/s	Budget \$	Research Focus Area
1. Optimising travel behaviour: short term	DOT	UWA, Curtin	144,000	Smarter Travel Decisions
2a. Public confidence in the use and roll-out of SAEV - older population - trial	DOT	Curtin	143,000	Smarter Travel Decisions
3a. Investment risk of emerging technology: Enhanced Strategic Asset Management	MRWA	ECU	93,000	Emerging technology and network optimisation and intelligence
3b. Investment risk of emerging technology: Enhanced Appraisal	DOT	UWA	60,720	Emerging technology and network optimisation and intelligence
4. Enhanced vehicle detection	MRWA	UWA	95,400	Emerging technology and network optimisation and intelligence
5. AV Simulation (iMOVE ITS continued)	DOT/ MRWA	UWA	100,000	Emerging technology and network optimisation and intelligence/ Integrated land use and transport futures
6. LU -T integration - Cubeland support	DPLH	UWA	72,000	Integrated land use and transport futures
7. Freight generation – transport demand – industrial land	DOT	UWA, Consultant	72,000	Integrated Freight System Optimisation
10. Journey Planning and mode choice	DOT/ PTA	Curtin	30,000	Smarter Travel Decisions
<b>TOTAL</b>			<b>810,120</b>	

## 5 EXTERNAL RESEARCH PROJECTS

External projects are those where no core funds are used.

### 5.1 Smart Cities and Suburbs: RailSmart Wanneroo

On 17 November 2017, official confirmation was received that this \$1 million over two years funding application, was successful. This project will continue until May 2019.

### 5.2 RAC Project

There are still funds remaining in the PATREC-RAC research program funds (about 40K). PATREC will work with the RAC to identify and develop a suitable research project to undertake, possibly in relation to the RAC's iMOVE participation.

### 5.3 Other opportunities

- ARC Linkage application and rejoinder **submitted** (outcome expected end November 2018) – 148 page proposal submitted to Australian Research Council for 3 year project “Rethinking integrated land-use and transport (LUTI) systems”. Partners: UWA (Administering Organisation), UniSA, DPLH, DOT, Landcorp, Renewal SA, Infraplan. Total cash: \$543,411 over 3 years (ARC - \$314,411; WA government \$120k; SA Renewal \$7.5k, UWA PhD stipend (\$101.5k) plus significant in-kind contributions.

The research will: 1) establish how superior LU and mode choice model parameters (and associated data development) will improve plans and policies; and 2) demonstrate that the performance of the LUTI model can remove barriers to adoption. The collaboration with POs will provide government agencies, planners and consultants with tools for realistic analysis of potential economic, social, energy and environmental effects of alternative urban development scenarios; testing spatial distribution of people and employment, and the impacts and wider benefits of investments in infrastructure and services. Developments here could be replicated elsewhere, as the project delivers the methodology.

- Cycling Access to Stations – testing a pilot Planning Support System (Courtney Babb, Parisa Izadpanahi, Xin Liu and Giles Thomson - Curtin) – allocated 30k from RailSmart Planning Wanneroo as a starter but need a further 50k. Owen Thomas suggested the work has some apparent synergies with PTA’s Route Utilisation Strategy in particular work on Station Access Strategies. In discussions with new Rail Planning Manager (Annabelle Fisher) to modify the proposal to more directly align with PTA requirements. Teaching commitments delayed further progress in 2018 but will be pursued again in 2019 if teaching commitments allow.
- Multi-modal travel tracking app “Freewheeler” – the developer approached UWA to discuss collaboration opportunities. The University of Plymouth, DOT (Your Move team) and some local governments are participating in further discussion about approach and funding for a pilot. The second round of Smart Cities funding was pursued but it was not possible to get commitments from local government (who had to be the lead) in time and a CRC project is under consideration while the app undergoes further refinement before it is ready for trialling. Next step is to involve PTA as their bus GPS data would be ideal to test the mode identification component.

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## 6 HUMAN RESOURCING

It is critical to PATREC’s operation to have dedicated human resources. While university-paid academics participate in PATREC on a largely in-kind basis, benefiting from access to policy research need information, people and data, funds for research assistants, industry-partner support for grant applications, they often have teaching and other commitments in addition to research. PATREC’s role is to offer management, administrative, operational and engagement support to enable researchers to contribute knowledge and evidence to inform planning and transport policy. To this end, PATREC core resourcing is as follows:

### ***Research Project Manager***

- Dr Linda Robson has been appointed in the role of PATREC Project Manager in place of an administrative assistant
- Appointed on a two year fixed term contract for 0.8 FTE with the other 0.2FTE to cover her teaching responsibilities being paid by the School (UWA), starting 1 April 2018 to 31 March 2020
- 0.8FTE salary (level B1) is funded from the approved PA budget of \$76K and from the Smart Cities project management and research budget
- Linda has lectured in urban planning at UWA over the past 4 years and brings strong project management, website development and management and urban planning research skills to PATREC.

### ***PATREC Research Fellow***

- Chao Sun’s fixed term contract has been extended to June 2020
- His involvement in iMOVE projects is critical
- His salary is paid 100% by research project funding (iMOVE, Smart Cities, RAC Pulse of Perth)
- In 2019, he will be responsible for the Transport Engineering unit at UWA (0.2FTE commitment, paid by UWA)
- The strategy for him to continue to fulfil his critical PATREC research role is to appoint additional research assistant support, in process.

### **Director**

- Ongoing contingent appointment awarded
- Director's salary is 60% funded by project funding eg. Smart Cities grant funding

### **Computer Science Project support**

- Tristan Reed (Curtin) is working in the PATREC office directly with PATREC researchers
- RAC, iMOVE and Smart Cities project responsibilities
- 0.8 FTE for 18 months
- Finalising his PhD

### **Casual and contract research assistance**

The iMOVE CRC and Smart Cities projects, together with supplementary funding contributions, have enabled human resourcing stability to be ensured for the core PATREC team at least until 2020. The following researchers have been appointed to work on PATREC projects:

- Yan Ji (Computer Scientist) – RAC Pulse of Perth,
- Dr Rui Wang (Computer Scientist) - iMOVE Network Operations
- Tristan Reed (Computer Scientist) – RAC, RailSmart, iMOVE freight (truck tracking)
- Dr Sae Chi (Transport Engineer/Economist, commencing 24 September, from Brisbane) – iMOVE Freight, RailSmart – 18 month appointment
- Adriana Maria Nunez Picado (PhD urban planning/geography student) – RailSmart (employment)

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## **7 BUDGET 2019**

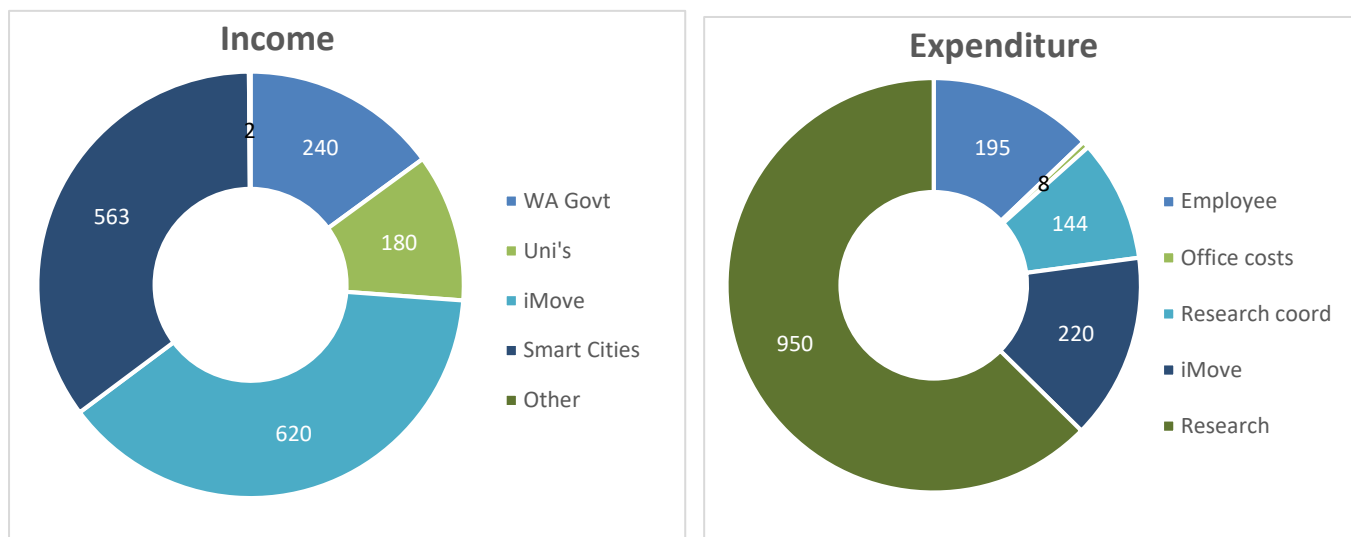
### **7.1 Budget 2019**

In April 2017 the Board determined that PATREC should continue to explore funding on a project-by-project basis with partners and other external grants, rather than increasing partner subscriptions. This was on the basis that as long as PATREC proposed research projects to address identified government issues, focussed on the provision of evidence for benefits realisation, there would not be a problem in attracting additional project-level funding from government agencies.

Since that meeting it is positive to see that that Government partners and others have contributed additional project-specific funds during 2018. The funding approach for 2019 is based on the following assumptions:

- No core funding increase until 2020
- Smart Cities (or similar) funding end in mid- 2019
- Priority research projects identified for support by the PRAC, with initial budget estimates being more than double (\$1.9 million) that of available research funds (740K)
- PATREC's participation in the iMOVE CRC (10 years) which is flexible across years ie. more participation funds can be contributed in any period, attracting commensurately higher levels of iMOVE funds for those years, but on condition that total commitment across the entire 10 year period remains constant.

The following outlines the Centres forecast income and expenditure for 2019.



**Table 2: Anticipated income and expenditure figures for 2019**

PATREC Income and Expenditure	Budget 2019	Notes
<b>INCOME</b>		
WA Government Grants	240,000	To increase in 2020
Universities Sponsorship	180,000	To increase in 2020
iMOVE Commonwealth	341,000	PATREC participation funds "returned" to (150K) plus 75k iMOVE Commonwealth funds plus UWA's 70K contribution "returned"
iMOVE UWA	70,000	
iMOVE ECU		Direct to ECU, not reflected in PATREC's accounts
iMOVE additional gov/industry	135,000	See Table 5
Smart Cities and Suburbs	563,000	Balance of 2018 income to 1 million project total
Other Research Grants & Contracts	231,000	Not sufficiently advanced for 2019 income
Accrued Interest	1,500	
<b>Total Income</b>	<b>1,761,500</b>	
<b>EXPENDITURE</b>		
<b>PATREC OFFICE</b>	<b>203,320</b>	
Director (0.4)	96,000	1.25% increase, 2018 budget underestimated salary cost
Administrative support	76,000	Toward L Robson's salary
General Office Costs	8,000	
Board Chair Stipend	23,320	Should increase in 2020 when subscriptions increase
<b>RESEARCH PROJECTS</b>	<b>1,506,928</b>	
Research Co-ordination (Dir. 0.6)	144,000	1.25% increase, 2018 budget underestimated salary cost
iMOVE participation - UWA and PATREC	220,000	55K per quarter
Project Researchers, Consultants, Expenses	1,142,928	See Table 3 for core funding projects included
<b>Total Expenditure</b>	<b>1,710,248</b>	
<b>YTD BALANCE</b>	<b>51,252</b>	
<b>Balance Brought Forward from 2017</b>	<b>107,205</b>	
<b>CLOSING BALANCE (incl Balance B/F)</b>	<b>158,457</b>	

The committed and assumed additional funding from existing PATREC partners is summarised below.

**Table 3: Distribution of budget across projects and partner universities (over two years)**

Project 2019-2021 (2 years)	Proposer	UWA	Curtin	ECU	PATREC Mng+consulting	Budget
	DOT					
1. Optimising travel behaviour: short term	DOT	74,000	56,000		14,000	144,000
2a. Public confidence in the use and roll-out of SAEV - older population - trial	DOT		129,000		14,000	143,000
2b. Public confidence - governance	DOT					0
3a. Strategic Asset Management	MRWA		15,000	69,000	9,000	93,000
3b. Appraisal		54,720			6,000	60,720
4. Enhanced vehicle detection	MRWA	85,400			10,000	95,400
5. AV Simulation (input to 1 and 3 and iMOVE ITS continued)	DOT/ MRWA	90,000			10,000	100,000
6. LU -T integration - Cubeland support	DPLH	65,000			7,000	72,000
7. Freight generation – transport demand – industrial land	DOT	45,000			27,000	72,000
8. Survey costs - direct/consult	DOT					0
10. Journey Planner tool assessment	DOT/ PTA		27,000		3,000	30,000
<b>TOTAL</b>		<b>414,120</b>	<b>227,000</b>	<b>69,000</b>	<b>100,000</b>	<b>810,120</b>
Required distribution in accordance with contribution		<i>413,792</i>	<i>226,918</i>	<i>69,410</i>		
Additional funding required over and above core 740k						70,120

The calculation for the required distribution in accordance with contribution rates is set out in Table 4.

**Table 4: Required distribution in accordance with contribution rates**

Partner	Contribution 2019-20 (K)			%	Budget \$
	Core	iMOVE	TOT		
UWA	170	140	310	0.58	413,792
Curtin	170	0	170	0.32	226,918
ECU	42	10	52	0.10	69,410
<b>Total Unis</b>			<b>532</b>		<b>710,120</b>
PATREC 10%					80,000
Consultants					20,000
<b>New project budget</b>					<b>810,120</b>

## 8 KEY PERFORMANCE INDICATOR TARGETS 2019

In accordance with the PATREC Review, performance indicators have been considerably reduced to essential academic and policy impact indicators with focus on outputs and outcomes rather than inputs.

**Table 6: Key Performance Indicator Targets 2019**

Performance Indicator	Target 2018	Achieved -15 Nov 18	Target 2019
<b>Academic Performance Indicators</b>			
Number of journal papers published	7	7	5
Number of peer-reviewed book chapters published		1	
Number of peer-reviewed conference papers published in proceedings	8	6	10
Number of peer-reviewed books published			
Number of top-up sponsored PhD graduated			

<b>Performance Indicator</b>	<b>Target 2018</b>	<b>Achieved -15 Nov 18</b>	<b>Target 2019</b>
Value (\$) of [direct] external research funding secured (through PATREC account)	\$1,070K	\$905K	\$1,183K
Value (\$) of [indirect] external research funding secured (through individual partner university account)		18K (ECU/iMOVE): 23K (UWA/Video Analytics)	
<b>Policy Impact Performance Indicators</b>			
Number of high impact, policy-informing projects/sub-projects completed (2 year projects)	3	0	3
Number of substantive Technical Reports/Working Papers published	3	0	3
Number of PATREC Perspectives published on PATREC website	2	0	3
Number of presentations at PATREC and other connection events*	10	7	10
Number of connection events arranged and held	4	4	6
Number of short courses, unit contributions presented	1	1	4
<b>Stakeholder satisfaction indicator**</b>	<b>80%</b>	<b>72%</b>	<b>80%</b>

- *\*Including conference presentations with no published paper*
- *\*\*To be undertaken post Annual Report release as suggested by ECU*